

CLAIMS

1. For use with an exercise apparatus that a user operates to perform an exercise activity having multiple muscular phases, a method for coaching the user with an electronic coaching device, the method comprising:

determining that the exercise activity should be performed according to a first muscular phase;

providing a first user perceptible output from the coaching device to prompt the user to operate the exercise apparatus according to the first muscular phase;

determining that the exercise activity should be performed according to a second muscular phase that differs from the first muscular phase; and

providing a second user perceptible output from the coaching device to prompt the user to operate the exercise apparatus according to the second muscular phase, wherein the second user perceptible output differs from the first user perceptible output.

2. The method of claim 1, further comprising:

determining that the exercise activity should be performed according to a third muscular phase that differs from the first and second muscular phases; and

providing a third user perceptible output from the coaching device to prompt the user to operate the exercise apparatus according to the third muscular phase, wherein the third user perceptible output differs from the first and second user perceptible outputs.

3. The method of claim 2, wherein the first, second and third user perceptible outputs comprise a visual display.

4. The method of claim 3, wherein the first muscular phase is a concentric phase, the second muscular phase is an eccentric phase, and the third muscular phase is an isometric phase.
5. The method of claim 4, wherein the visual display includes an arc including a first segment and a second segment separated by an apex location, such that the first segment visually prompts the user to operate the exercise apparatus according to the concentric phase, the second segment visually prompts the user to operate the exercise apparatus according to the eccentric phase, and the apex location visually prompts the user to operate the exercise apparatus according to the isometric phase.
6. The method of claim 5, wherein the visual display is provided by an array of LEDs arranged to provide the arc.
7. The method of claim 4, wherein the concentric, eccentric, and isometric phases each last for 2 to 8 seconds.
8. The method of claim 2, wherein the first, second and third user perceptible outputs comprise an audio output.
9. The method of claim 8, wherein the first muscular phase is a concentric phase, the second muscular phase is an eccentric phase, and the third muscular phase is an isometric phase, and wherein the audio output includes a first verbal command that prompts the user to operate the exercise apparatus according to the concentric phase, a second verbal command that prompts the user to operate the exercise apparatus according to the eccentric phase, and a third verbal

command that prompts the user to operate the exercise apparatus according to the isometric phase.

10. The method of claim 4, wherein the first, second and third user perceptible outputs further comprise an audio output, the audio output further including a first verbal command that is synchronized with a first visual display to prompt the user to operate the exercise apparatus according to the concentric phase, a second verbal command that is synchronized with a second visual display to prompt the user to operate the exercise apparatus according to the eccentric phase, and a third verbal command that is synchronized with a third visual display to prompt the user to operate the exercise apparatus according to the isometric phase.

11. The method of claim 1, wherein the first and second user perceptible outputs comprise a visual display.

12. The method of claim 11, wherein the first muscular phase is a concentric phase and the second muscular phase is an eccentric phase.

13. The method of claim 12, wherein the visual display includes an arc including a first segment and a second segment, such that the first segment visually prompts the user to operate the exercise apparatus according to the concentric phase, the second segment visually prompts the user to operate the exercise apparatus according to the eccentric phase.

14. The method of claim 13, wherein the visual display is provided by an array of LEDs arranged to provide the arc.

15. The method of claim 11, wherein the concentric and eccentric phase each last for 2 to 8 seconds.
16. The method of claim 2, wherein the exercise activity is an abdominal exercise.
17. The method of claim 16, wherein the first and second user perceptible outputs comprise an audio output, the first muscular phase is a concentric phase and the second muscular phase is an eccentric phase, and the audio output includes a first verbal command that prompts the user to operate the exercise apparatus according to the concentric phase and a second verbal command that prompts the user to operate the exercise apparatus according to the eccentric phase.
18. The method of claim 12, wherein the first and second user perceptible outputs further comprise an audio output, the audio output further including a first verbal command that is synchronized with a first visual display to prompt the user to operate the exercise apparatus according to the concentric phase and a second verbal command that is synchronized with a second visual display to prompt the user to operate the exercise apparatus according to the eccentric phase.
19. An apparatus for exercise coaching, the apparatus comprising:
an exercise device arranged to accommodate an exercise activity having multiple muscular phases; and
an electronic coaching device, connected to the exercise device, the electronic coaching device being arranged to determine that the exercise activity should be performed according to a first muscular phase, provide a first user perceptible output to prompt the user to operate the exercise device according to the first muscular

phase, determine that the exercise activity should be performed according to a second muscular phase that differs from the first muscular phase, and provide a second user perceptible output from the coaching device to prompt the user to operate the exercise device according to the second muscular phase, wherein the second user perceptible output differs from the first user perceptible output.

20. The apparatus of claim 19, wherein the electronic coaching device is further arranged to determine that the exercise activity should be performed according to a third muscular phase that differs from the first and second muscular phases, and provide a third user perceptible output to prompt the user to operate the exercise device according to the third muscular phase, wherein the third user perceptible output differs from the first and second user perceptible outputs.

21. The apparatus of claim 20, wherein the first, second and third user perceptible outputs comprise a visual display.

22. The apparatus of claim 21, wherein the first muscular phase is a concentric phase, the second muscular phase is an eccentric phase, and the third muscular phase is an isometric phase.

23. The apparatus of claim 22, wherein the visual display includes an arc including a first segment and a second segment separated by an apex location, such that the first segment visually prompts the user to operate the exercise device according to the concentric phase, the second segment visually prompts the user to operate the exercise device according to the eccentric phase, and the apex location visually prompts the user to operate the exercise device according to the isometric phase.

24. The apparatus of claim 23, wherein the visual display is provided by an array of LEDs arranged to provide the arc.

25. The apparatus of claim 22, wherein the concentric, eccentric, and isometric phases each last for 2 to 8 seconds.

26. The apparatus of claim 20, wherein the first, second and third user perceptible outputs comprise an audio output.

27. The apparatus of claim 26, wherein the first muscular phase is a concentric phase, the second muscular phase is an eccentric phase, and the third muscular phase is an isometric phase, and wherein the audio output includes a first verbal command that prompts the user to operate the exercise device according to the concentric phase, a second verbal command that prompts the user to operate the exercise device according to the eccentric phase, and a third verbal command that prompts the user to operate the exercise device according to the isometric phase.

28. The apparatus of claim 22, wherein the first, second and third user perceptible outputs further comprise an audio output, the audio output further including a first verbal command that is synchronized with a first visual display to prompt the user to operate the exercise device according to the concentric phase, a second verbal command that is synchronized with a second visual display to prompt the user to operate the exercise device according to the eccentric phase, and a third verbal command that is synchronized with a third visual display to prompt the user to operate the exercise device according to the isometric phase.

29. The apparatus of claim 19, wherein the first and second user perceptible outputs comprise a visual display.

30. The apparatus of claim 29, wherein the first muscular phase is a concentric phase and the second muscular phase is an eccentric phase.

31. The apparatus of claim 30, wherein the visual display includes an arc including a first segment and a second segment, such that the first segment visually prompts the user to operate the exercise device according to the concentric phase, the second segment visually prompts the user to operate the exercise device according to the eccentric phase.

32. The apparatus of claim 31, wherein the visual display is provided by an array of LEDs arranged to provide the arc.

33. The apparatus of claim 29, wherein the concentric and eccentric phase each last for 2 to 8 seconds.

34. The apparatus of claim 19, wherein the exercise activity is an abdominal exercise.

35. The apparatus of claim 34, wherein the first and second user perceptible outputs comprise an audio output, the first muscular phase is a concentric phase and the second muscular phase is an eccentric phase, and the audio output includes a first verbal command that prompts the user to operate the exercise device according to the concentric phase and a second verbal command that prompts the user to operate the exercise device according to the eccentric phase.

36. The apparatus of claim 30, wherein the first and second user perceptible outputs further comprise an audio output, the audio output further including a first verbal command that is synchronized with a first visual display to prompt the user to operate the exercise device according to the concentric phase and a second verbal command that is synchronized with a

second visual display to prompt the user to operate the exercise device according to the eccentric phase.

37. For use with an exercise apparatus that a user operates to perform an exercise activity having multiple muscular phases, an exercise coaching device for coaching the user, the exercise device comprising:

means for determining that the exercise activity should be performed according to a first muscular phase;

means for providing a first user perceptible output to prompt the user to operate the exercise apparatus according to the first muscular phase;

means for determining that the exercise activity should be performed according to a second muscular phase that differs from the first muscular phase; and

means for providing a second user perceptible output to prompt the user to operate the exercise apparatus according to the second muscular phase, wherein the second user perceptible output differs from the first user perceptible output.

38. The exercise coaching device of claim 37, further comprising:

means for determining that the exercise activity should be performed according to a third muscular phase that differs from the first and second muscular phases; and

means for providing a third user perceptible output to prompt the user to operate the exercise apparatus according to the third muscular phase, wherein the third user perceptible output differs from the first and second user perceptible outputs.

39. The exercise coaching device of claim 38, wherein the first, second and third user perceptible outputs comprise a visual display.

40. The exercise coaching device of claim 39, wherein the first muscular phase is a concentric phase, the second muscular phase is an eccentric phase, and the third muscular phase is an isometric phase.

41. The exercise coaching device of claim 40, wherein the visual display includes an arc including a first segment and a second segment separated by an apex location, such that the first segment visually prompts the user to operate the exercise apparatus according to the concentric phase, the second segment visually prompts the user to operate the exercise apparatus according to the eccentric phase, and the apex location visually prompts the user to operate the exercise apparatus according to the isometric phase.

42. The exercise coaching device of claim 41, wherein the visual display is provided by an array of LEDs arranged to provide the arc.

43. The exercise coaching device of claim 38, wherein the first, second and third user perceptible outputs comprise an audio output.

44. The exercise coaching device of claim 43, wherein the first muscular phase is a concentric phase, the second muscular phase is an eccentric phase, and the third muscular phase is an isometric phase, and wherein the audio output includes a first verbal command that prompts the user to operate the exercise apparatus according to the concentric phase, a second verbal command that prompts the user to operate the exercise apparatus according to the eccentric phase, and a third verbal command that prompts the user to operate the exercise apparatus according to the isometric phase.

45. The exercise coaching device of claim 40, wherein the first, second and third user perceptible outputs further comprise an audio output, the audio output further including a first verbal command that is synchronized with a first visual display to prompt the user to operate the exercise apparatus according to the concentric phase, a second verbal command that is synchronized with a second visual display to prompt the user to operate the exercise apparatus according to the eccentric phase, and a third verbal command that is synchronized with a third visual display to prompt the user to operate the exercise apparatus according to the isometric phase.